CLAIMS

1. A method of treating a transplant , comprising:

administering to the transplant a vesicle, comprising:

(i) a T cell-apoptosis-inducing molecule, and

(ii) a phospholipid which is a stable vesicle former,

wherein the vesicle has a fusion rate of at least 20 vesicle fusions/second.

2. The method of claim 1, wherein the T cell-apoptosis-inducing molecule comprises a lipid moiety.

3. The method of claim 2, wherein the T cell-apoptosis-inducing molecule further comprises a biotin moiety.

4. The method of claim 3, wherein N-biotinoyl-1,2-dihexadecanoyl-*sn*-glycero-3-phosphoethanolamine comprises the lipid moiety.

5. The method of claim 3, wherein the T cell-apoptosis-inducing molecule comprises a chimeric polypeptide of avidin or streptavidin.

6. The method of claim 5, wherein the T cell-apoptosis-inducing molecule comprises a chimeric polypeptide of FasL.

7. The method of claim 1, wherein the transplant is heart or skin.

8. The method of claim 1, wherein the vesicle has a fusion rate of at least 10^3 vesicle fusions/second.

9. The method of claim 1, wherein the vesicle further comprises ATP.

10. A method of treating a transplant , comprising:

administering to the transplant a vesicle, comprising:

(i) a phospholipid which is stable vesicle former,

(ii) at least one member selected from the group consisting of another polar lipid, PEG, a raft former and a fusion protein, and

(iii) a lipid,

wherein the vesicle has a fusion rate of at least 20 vesicle fusions/second.

11. The method of claim 10, wherein the T cell-apoptosis-inducing molecule comprises a lipid moiety.

12. The method of claim 11, wherein the T cell-apoptosis-inducing molecule further comprises a biotin moiety.

13. The method of claim 12, wherein N-biotinoyl-1,2-dihexadecanoyl-*sn*-glycero-3-phosphoethanolamine comprises the lipid moiety.

14. The method of claim 12, wherein the T cell-apoptosis-inducing molecule comprises a chimeric polypeptide of avidin or streptavidin.

15. The method of claim 14, wherein the T cell-apoptosis-inducing molecule comprises a chimeric polypeptide of FasL.

16. The method of claim 10, wherein the transplant is heart or skin.

17. The method of claim 10, wherein the vesicle has a fusion rate of at least 10^3 vesicle fusions/second.

18. The method of claim 10, wherein the vesicle further comprises ATP.

19. A method treating a transplant, comprising administering to the transplant a T cell-apoptosis-inducing molecule.

20. A vesicle, comprising:

a phospholipid which is a stable vesicle former; and

a T cell-apoptosis-inducing molecule.

21. The vesicle of claim 20, wherein the T cell-apoptosis-inducing molecule comprises a lipid moiety.

22. The vesicle of claim 21, wherein the T cell-apoptosis-inducing molecule further comprises a biotin moiety.

23. The vesicle of claim 22, wherein N-biotinoyl-1,2-dihexadecanoyl-*sn*-glycero-3-phosphoethanolamine comprises the lipid moiety.

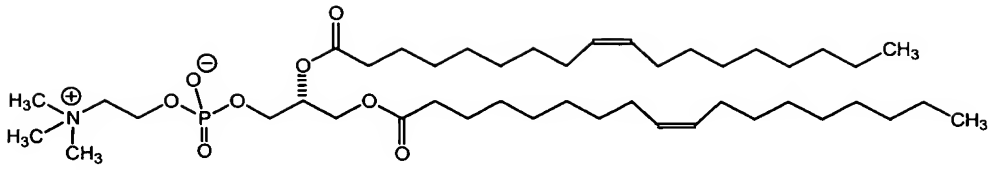
24. A vesicle, comprising:

(i) a T cell-apoptosis-inducing molecule,

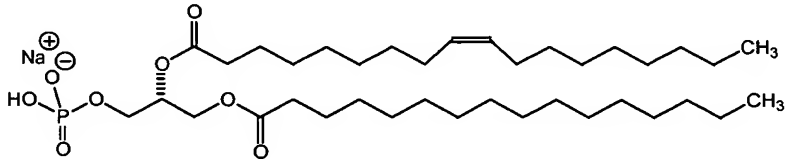
(ii) a phospholipid which is stable vesicle former, selected from the group consisting of 1,2-dioleoyl-sn-glycero-3-phosphocholine, 1-palmitoyl-2-docosahexaenoyl-sn-glycero-3-phosphocholine and a mixture thereof, and

(iii) at least one member selected from the group consisting of a polar lipid which is not a stable vesicle former and PEG,

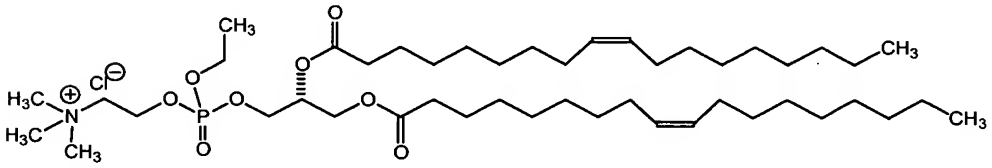
wherein the polar lipid which is not a stable vesicle former has a structure selected from the group consisting of formulas (XVII), (XVIII), (XIX), (XX), (XXI), (XXII), (XXIII), (XXV) and (XXVI)



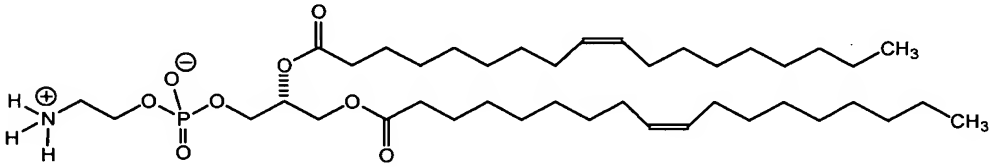
(XVII)



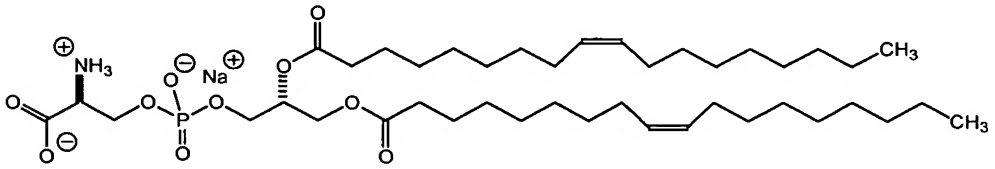
(XVIII)



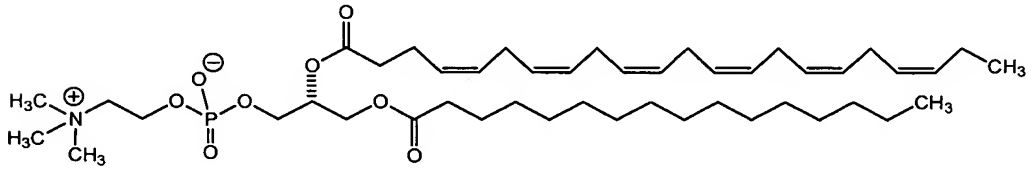
(XIX)



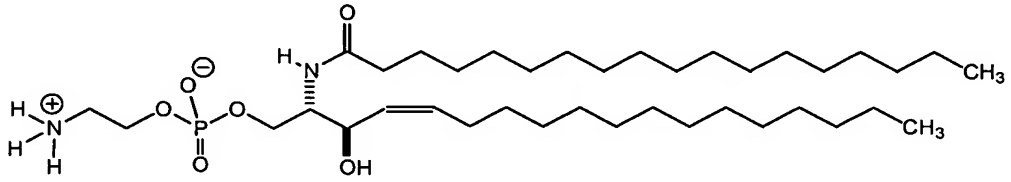
(XX)



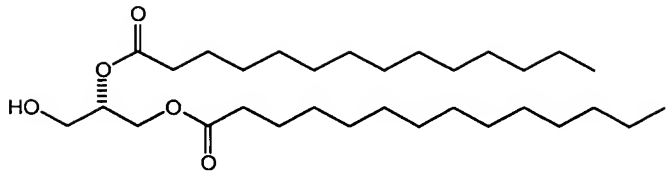
(XXI)



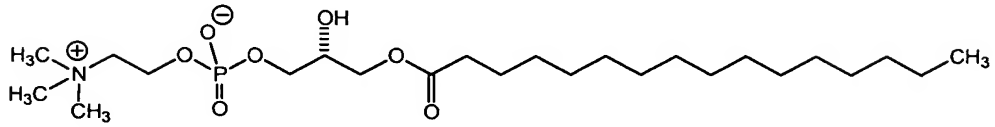
(XXII)



(XXIII)



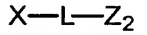
(XXV)



(XXVI).

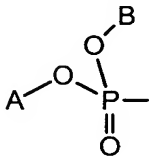
and

wherein the phospholipid which is stable vesicle former has a structure of formula (I)



(I)

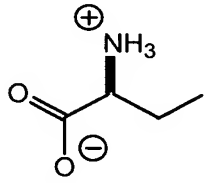
wherein X is H, or has a structure of formula (II)



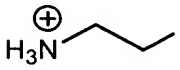
(II)

B is a cation or an alkyl group,

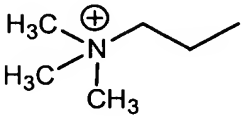
A is H, or has a structure selected from the group consisting of formulas (III), (IV), (V), (VI) and (VII)



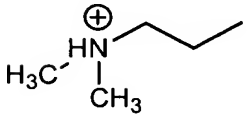
(III)



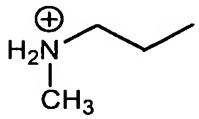
(IV)



(V)

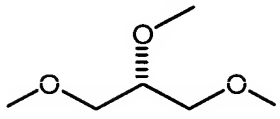


(VI)

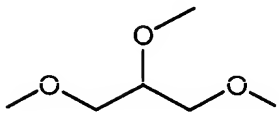


(VII)

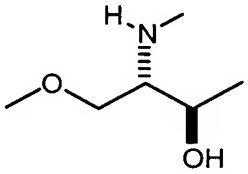
L has a structure selected from the group consisting of formulas (VIII), (IX) or (X)



(VIII)

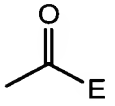


(IX)

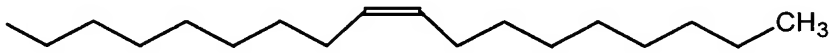


(X)

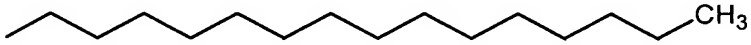
and E has a structure selected from the group consisting of (XII), (XIII), (XIV), (XV) or (XVI)



(XI)



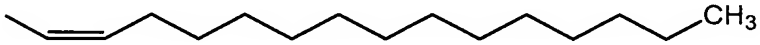
(XII)



(XIII)

(XIV)

(XV)



(XVI)

25. The vesicle of claim 22, wherein the T cell-apoptosis-inducing molecule comprises a chimeric polypeptide of avidin or streptavidin.

26. The vesicle of claim 25, wherein the T cell-apoptosis-inducing molecule comprises a chimeric polypeptide of FasL.

27. The vesicle of claim 20, wherein the transplant is heart or skin.

28. The vesicle of claim 20, wherein the vesicle has a fusion rate of at least 20 vesicle fusions/second.

29. The vesicle of claim 20, wherein the vesicle has a fusion rate of at least 10^3 vesicle fusions/second.

30. The method of claim 20, wherein the vesicle further comprises ATP.

31. The vesicle of claim 20, wherein the lipid is N-biotinoyl-1,2-dihexadecanoyl-*sn*-glycero-3-phosphoethanolamine, and the T cell-apoptosis-inducing molecule is a chimeric polypeptide of a FasL polypeptide and at least one biotin-binding domain.

32. A transplant contacted with a vesicle of claim 20.

33. A method of transplanting a transplant, comprising:
contacting the transplant with a vesicle of claim 20; and
transplanting the transplant.

34. The method of claim 33, wherein the donor and recipient are immunohisto-incompatible.

35. A method of transplanting a transplant, comprising:

transplanting a transplant into a recipient without administering immunosuppressive therapy.

36. In a method of transplanting a transplant, including transplanting a transplant into a recipient,
administering to the recipient immunosuppressive therapy, the improvement comprising:
contacting the transplant with a vesicle of claim 20.

37. A method of treating a transplant, comprising:
administering to the transplant:
a T cell-apoptosis-inducing molecule, and
a vesicle, comprising
(i) a means for binding the T cell-apoptosis-inducing molecule, and
(ii) a phospholipid which is a stable vesicle former,
wherein the vesicle has a fusion rate of at least 20 vesicle fusions/second.

38. The method of claim 37, comprising the sequential steps of:
(i) administering the vesicles to the transplant; and
(ii) administering the T cell-apoptosis-inducing molecule to the transplant.

39. A method of treating a transplant already transplanted according to the method of claim 37.